

AMENDMENT to the CLAIMS

1. (currently amended): A method of recovering anhydrous hydrogen fluoride from a an azeotrope or azeotrope-like mixture comprising hydrogen fluoride and a halogenated hydrocarbon comprising:

 providing a an azeotrope or azeotrope-like mixture comprising hydrogen fluoride and at least one halogenated hydrocarbon; and

 extracting hydrogen fluoride from said mixture by contacting said mixture with a solution of less than about 93 wt.% sulfuric acid solution in water.
2. (original): The method of claim 1 wherein said sulfuric acid solution comprises from about 50 to about 90 wt% of sulfuric acid based on the total weight of the sulfuric acid solution.
3. (currently amended): The method of claim 1 wherein said sulfuric acid ~~solution~~ solution comprises from about 50 to about 85 wt% of sulfuric acid based on the total weight of the sulfuric acid solution.
4. (currently amended): The method of claim 1 wherein said sulfuric acid ~~solution~~ solution comprises from about 60 to about 85 wt% of sulfuric acid based on the total weight of the sulfuric acid solution.

5. (currently amended): The method of claim 1 wherein said sulfuric acid ~~soluton~~ solution comprises from about 75 to about 85 wt% of sulfuric acid based on the total weight of the sulfuric acid solution.
6. (currently amended): The method of claim 1 wherein said sulfuric acid ~~soluton~~ solution comprises about 80 wt% of sulfuric acid based on the total weight of the sulfuric acid solution.
7. (currently amended): ~~The method of claim 1 wherein said halogenated hydrocarbon is selected from the group consisting of HFCs, HCFCs and mixtures of two or more thereof.~~
A method of recovering anhydrous hydrogen fluoride from a mixture comprising hydrogen fluoride and a halogenated hydrocarbon comprising:
providing a mixture comprising hydrogen fluoride and at least one halogenated hydrocarbon; and
extracting hydrogen fluoride from said mixture by contacting said mixture with a solution of less than about 93 wt.% sulfuric acid solution in water;
wherein said halogenated hydrocarbon is a hydrochlorofluorocarbon, a hydrochlorocarbon, or some combination thereof.
8. (currently amended): The method of claim 7 wherein said halogenated hydrocarbon is selected from the group consisting of 1,1,1,3,3-pentafluoropropane (“HFC-245fa”), 1,1,1,2-tetrafluoroethane (“HFC-134a”), pentafluoroethane

~~("HFC-125"), 1,1,1,3,3-pentafluorobutane ("HFC-365mfc"), 1,1,1-trifluoroethane ("HFC-143a"), 1,1,1,3,3,3-hexafluoropropane ("HFC-236fa"), difluoromethane ("HFC-32"), 1-chloro-1,2,2,2-tetrafluoroethane ("HCFC-124"), 1,1-dichloro-2,2,2-trifluoroethane ("HCFC-123"), chlorodifluoromethane ("HCFC-22"), and mixtures of two or more thereof.~~

9. (canceled)

10. (original): The method of claim 1 wherein said mixture comprising hydrogen fluoride and at least one halogenated hydrocarbon is a reaction product mixture obtained by reacting hydrogen fluoride with a chlorinated starting compound.

11. (original): The method of claim 10 wherein said chlorinated starting compound is selected from the group consisting of 1,1,1,3,3-pentachloropropane, 1,1,1,2-tetrachloroethane, perchloroethylene, chloroform, 1,1,1,3,3-pentachlorobutane, 1,1,1,3,3,3-hexachloropropane, methylene chloride, and 1,1,1-trichloroethane.

12. (original): The method of claim 10 wherein said chlorinated starting compound comprises 1,1,1,3,3-pentachloropropane.

13. (original): The method of claim 1 wherein the HF extracted from said mixture in said extraction step is further subjected to flash distillation to produce anhydrous HF.
14. (original): The method of claim 1 wherein the HF extracted from said mixture in said extraction step is further subjected to flash distillation and column fractionation distillation to produce anhydrous HF.
15. (original): The method of claim 1 wherein the anhydrous hydrogen fluoride produced contains less than about 200 ppm of sulfur impurities.
16. (original): The method of claim 15 wherein the anhydrous hydrogen fluoride produced contains less than about 100 ppm of sulfur impurities.
17. (original): The method of claim 16 wherein the anhydrous hydrogen fluoride produced contains less than about 75 ppm of sulfur impurities.
18. (original): The method of claim 15 wherein the sulfuric acid layer obtained via the extraction step contains less than about 5000 ppm of TOC impurities.
19. (original): The method of claim 15 wherein the sulfuric acid layer obtained via the extraction step contains less than about 3000 ppm of TOC impurities.

20. (original): The method of claim 15 wherein the sulfuric acid layer obtained via the extraction step contains less than about 1000 ppm of TOC impurities.
21. (original): A method of producing anhydrous hydrogen fluoride comprising:
providing a mixture comprising hydrogen fluoride and at least one halogenated hydrocarbon;
extracting hydrogen fluoride from said mixture with a solution of at least 98 wt.% sulfuric acid in water to provide an acid/HF mixture;
flash distilling said acid/HF mixture to provide a first HF product; adding water to the first HF product to form a diluted HF mixture; and distilling said diluted HF mixture to obtain anhydrous hydrogen fluoride.